

Trend Study 8B-14-00

Study site name: Clay Basin Bench.

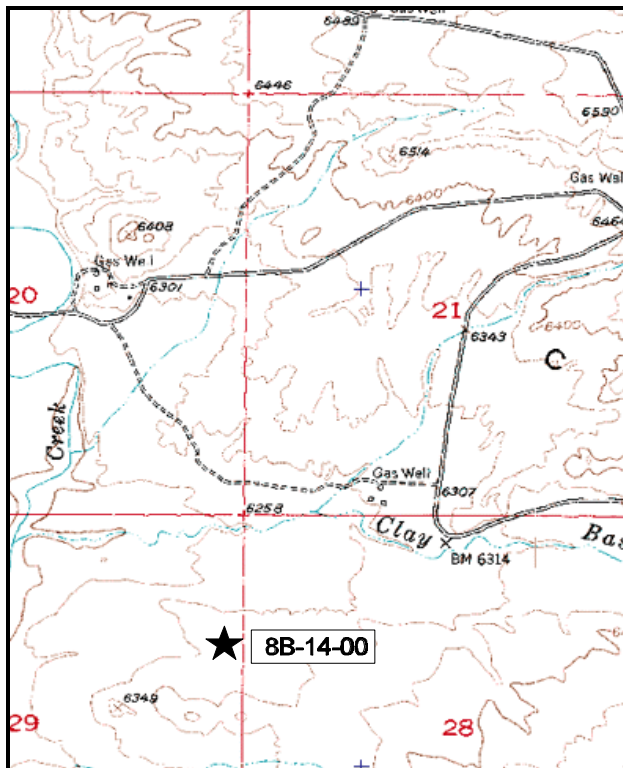
Range type: Big Sagebrush-Grass.

Compass bearing: frequency baseline 107°M.

First frame placement on frequency belts 5 feet. Frequency belt placement; line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft).

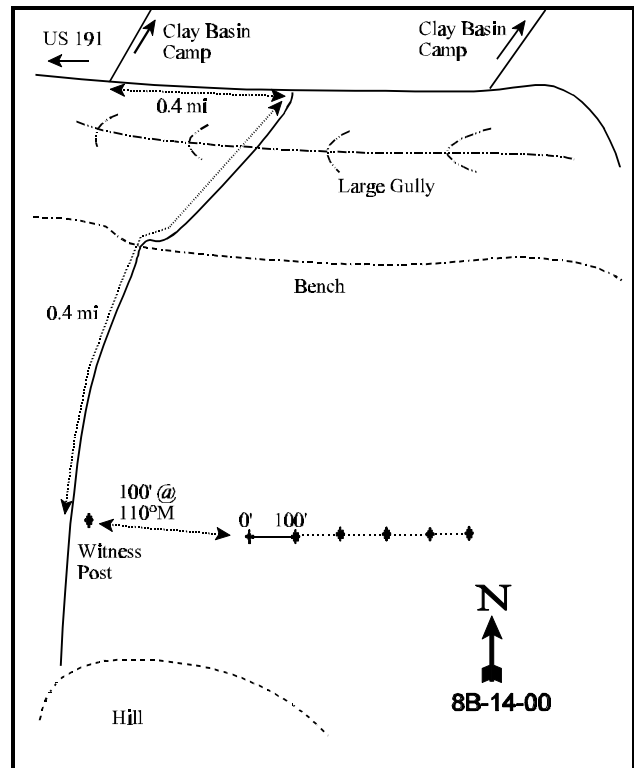
LOCATION DESCRIPTION

From Dutch John, proceed north towards Antelope Flat on Highway U.S. 191. Continue over the stateline into Wyoming and turn right just after Minnies Gap onto the Clay Basin road. Drive approximately 13 miles towards Clay Basin to the turn off to Clay Basin Camp. Turn right again and proceed 0.4 miles to another intersection. Turn right and go 0.4 miles going through the large gully and onto the bench. The witness post is on the left side of the road. The 0-foot stake is 100 feet away at a bearing of 110°M.



Map Name: Clay Basin

Township 3N, Range 24E, Section 29



Diagrammatic Sketch

UTM 4536844 N, 649503 E

DISCUSSION

Trend Study No. 8B-14

The Clay Basin Bench is a new trend study established in 2000 to monitor important big game winter range in Clay Basin. The site is placed on a bench about 1 mile to the south of Clay Basin Camp. It samples a Wyoming big sagebrush type with a gentle slope of 3% at an elevation of 6,300 feet. Aspect is to the west. Cattle graze this area in the summer which were in the area when the site was established. Deer and elk use the area primarily as winter range. Pellet group data taken along the study site baseline in 2000 estimate 56 deer, 5 elk, and 17 cow days use/acre (138 ddu/ha, 12 edu/ha and 42 cdu/ha).

Soil on the site is relatively deep and rock free but compacted with an effective rooting depth estimated at nearly 13 inches. It has a sandy loam texture with a neutral soil reaction (pH of 7.3). Phosphorus is marginal at 6.3 ppm where values less than 10 ppm can limit normal plant growth and development. There are some small active gullies on the site which appear to have originally been cattle trails. Herbaceous vegetation is lacking and percent bare ground is moderately high at 44%. An important stabilizing factor for the soil is the high cryptogamic cover (23%) which combined with vegetation and litter provide marginally sufficient protective ground cover.

The site supports an old stand of Wyoming big sagebrush with a density of 6,500 plants/acre. There is little reproduction in the form of seedlings and young. Seed production is poor this year and not much better last season considering the lack of old seed heads. Leader growth is currently poor averaging about 1 inch. This gives the sagebrush the appearance of being heavily hedged. Some heavy use appears to have taken place in the past, but current use is mostly moderate. Percent decadence is moderately high at 32% and approximately 44%, or 900 plants/acre, of the decadent plants are classified as dying.

Additional browse forage is provided by small numbers of winter fat, stickyleaf low rabbitbrush and slenderbush eriogonum. The most numerous shrub is broom snakeweed, an undesirable increaser. It currently has a density of 12,660 plants/acre which provides 18% of the browse cover. Ninety-three percent of the population was classified as mature. This would indicated a stable population where young plants make up only 2% of the population.

The herbaceous understory is lacking. Perennial grasses, consisting primarily of western wheatgrass, Indian ricegrass and needle-and-thread, produce only about 5% total cover. Forbs are also lacking and produce only 2% cover. Six species were encountered but hoods phlox, a low value, low growing species, dominates the composition by providing 98% of the forb cover.

2000 APPARENT TREND ASSESSMENT

The soil condition is poor due to a high percentage of bare ground combined with low cover of litter and vegetation. Even with the slight slope, some active erosion is occurring within the shrub interspaces. Condition of the key browse species, Wyoming big sagebrush, is also poor. The stand is overly mature with no seedlings evident and poor young recruitment at only 2%. Use is mostly moderate and percent decadence is fairly high at 32%. In addition, 44% of the decadent plants sampled are classified as dying and there are currently not enough young plants to replace those that are dead.

HERBACEOUS TRENDS --

Herd unit 08B, Study no: 14

| T y p e | Species | Nested Frequency '00 | Quadrat Frequency '00 | Average Cover % '00 |
|-----------------------------|-------------------------|--------------------------------|---------------------------------|-------------------------------|
| G | Agropyron smithii | 134 | 50 | 1.30 |
| G | Bromus tectorum (a) | 18 | 6 | .10 |
| G | Oryzopsis hymenoides | 71 | 27 | 1.12 |
| G | Poa fendleriana | 4 | 1 | .00 |
| G | Poa secunda | 80 | 27 | .36 |
| G | Sitanion hystrix | 14 | 6 | .10 |
| G | Stipa comata | 132 | 51 | 2.43 |
| Total for Annual Grasses | | 18 | 6 | 0.10 |
| Total for Perennial Grasses | | 435 | 162 | 5.33 |
| Total for Grasses | | 453 | 168 | 5.44 |
| F | Erigeron pumilus | 2 | 2 | .01 |
| F | Hymenoxys richardsonii | 4 | 1 | .00 |
| F | Penstemon spp. | 1 | 1 | .00 |
| F | Phlox hoodii | 134 | 62 | 1.92 |
| F | Schoenocrambe linifolia | 2 | 1 | .00 |
| F | Townsendia incana | 4 | 2 | .01 |
| Total for Annual Forbs | | 0 | 0 | 0 |
| Total for Perennial Forbs | | 147 | 69 | 1.95 |
| Total for Forbs | | 147 | 69 | 1.95 |

BROWSE TRENDS --

Herd unit 08B, Study no: 14

| T y p e | Species | Strip Frequency '00 | Average Cover % '00 |
|------------------|--|-------------------------------|-------------------------------|
| B | Artemisia tridentata wyomingensis | 97 | 15.67 |
| B | Ceratoides lanata | 10 | .21 |
| B | Chrysothamnus viscidiflorus viscidiflorus | 5 | .03 |
| B | Eriogonum microthecum | 6 | .00 |
| B | Gutierrezia sarothrae | 82 | 3.92 |
| B | Opuntia spp. | 43 | 1.75 |
| Total for Browse | | 243 | 21.60 |

BASIC COVER --

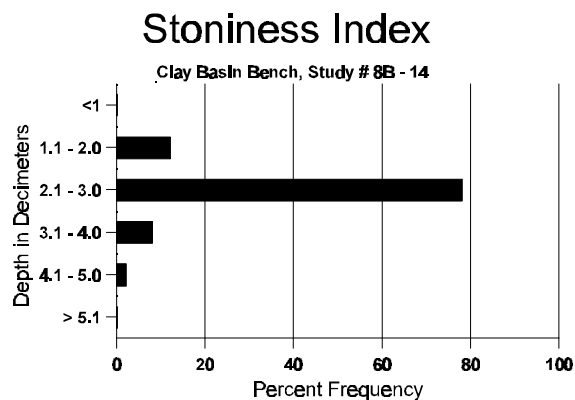
Herd unit 08B, Study no: 14

| Cover Type | Nested Frequency | Average Cover % |
|-------------|------------------|-----------------|
| | '00 | '00 |
| Vegetation | 389 | 28.52 |
| Rock | 16 | .20 |
| Pavement | 89 | .60 |
| Litter | 425 | 29.68 |
| Cryptogams | 277 | 22.77 |
| Bare Ground | 378 | 43.54 |

SOIL ANALYSIS DATA --

Herd Unit 8B, Study # 14, Study Name: Clay Basin Bench

| Effective rooting depth (inches) | Temp °F (depth) | pH | %sand | %silt | %clay | %OM | PPM P | PPM K | dS/m |
|----------------------------------|-----------------|-----|-------|-------|-------|-----|-------|-------|------|
| 12.87 | 56.0 (12.99) | 7.3 | 65.6 | 17.1 | 17.3 | 1.2 | 6.3 | 89.6 | 0.5 |



PELLET GROUP FREQUENCY --

Herd unit 08B, Study no: 14

| Type | Quadrat Frequency | Pellet Transect | |
|--------|-------------------|------------------------|------------------------|
| | | Pellet Groups per Acre | Days Use per Acre (ha) |
| | '00 | '00 | '00 |
| Rabbit | 9 | 70 | N/A |
| Elk | 3 | 70 | 5 (13) |
| Deer | 47 | 731 | 56 (139) |
| Cattle | 4 | 209 | 17 (43) |

BROWSE CHARACTERISTICS --

Herd unit 08B, Study no: 14

| A G E | Y R | Form Class (No. of Plants) | | | | | | | | | Vigor Class | | | | Plants Per Acre | Average (inches) Ht. Cr. | Total |
|--|--------|----------------------------|-----|----|------------------|---|---|-------------------|---|---|----------------|---|---|-----|--------------------|--------------------------------|-------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | | | |
| Artemisia tridentata wyomingensis | | | | | | | | | | | | | | | | | |
| Y | 00 | 7 | - | - | - | - | - | - | - | - | 7 | - | - | - | 140 | | 7 |
| M | 00 | 87 | 107 | 20 | 1 | - | - | - | - | - | 215 | - | - | - | 4300 | 13 25 | 215 |
| D | 00 | 35 | 60 | 7 | 1 | - | - | - | - | - | 58 | - | - | 45 | 2060 | | 103 |
| X | 00 | - | - | - | - | - | - | - | - | - | - | - | - | - | 680 | | 34 |
| % Plants Showing | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | <u>%Change</u> | | | | | | |
| '00 | | 51% | | | 08% | | | 14% | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | | | '00 | 6500 | Dec: | 32% |
| Ceratoides lanata | | | | | | | | | | | | | | | | | |
| M | 00 | 2 | 7 | 4 | - | - | - | - | - | - | 13 | - | - | - | 260 | 3 6 | 13 |
| D | 00 | - | 3 | - | - | - | - | - | - | - | 1 | - | - | 2 | 60 | | 3 |
| % Plants Showing | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | <u>%Change</u> | | | | | | |
| '00 | | 63% | | | 25% | | | 13% | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | | | '00 | 320 | Dec: | 19% |
| Chrysothamnus viscidiflorus viscidiflorus | | | | | | | | | | | | | | | | | |
| M | 00 | 3 | 2 | - | - | - | - | - | - | - | 5 | - | - | - | 100 | 8 7 | 5 |
| % Plants Showing | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | <u>%Change</u> | | | | | | |
| '00 | | 40% | | | 00% | | | 00% | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | | | '00 | 100 | Dec: | - |
| Eriogonum microthecum | | | | | | | | | | | | | | | | | |
| M | 00 | 2 | 1 | 4 | - | - | - | - | - | - | 7 | - | - | - | 140 | 4 5 | 7 |
| % Plants Showing | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | <u>%Change</u> | | | | | | |
| '00 | | 14% | | | 57% | | | 00% | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | | | '00 | 140 | Dec: | - |
| Gutierrezia sarothrae | | | | | | | | | | | | | | | | | |
| S | 00 | 4 | - | - | - | - | - | - | - | - | 4 | - | - | - | 80 | | 4 |
| Y | 00 | 24 | - | - | - | - | - | - | - | - | 24 | - | - | - | 480 | | 24 |
| M | 00 | 589 | - | - | - | - | - | - | - | - | 589 | - | - | - | 11780 | 4 7 | 589 |
| D | 00 | 20 | - | - | - | - | - | - | - | - | 15 | - | 3 | 2 | 400 | | 20 |
| X | 00 | - | - | - | - | - | - | - | - | - | - | - | - | - | 60 | | 3 |
| % Plants Showing | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | <u>%Change</u> | | | | | | |
| '00 | | 00% | | | 00% | | | .78% | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | | | '00 | 12660 | Dec: | 3% |

| A G E | Y R | Form Class (No. of Plants) | | | | | | | | | Vigor Class | | | | Plants Per Acre | Average (inches) Ht. Cr. | Total |
|--|--------|----------------------------|---|---|------------------|---|---|-------------------|---|---|----------------|-----|------|------|--------------------|--------------------------------|-------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | | | |
| Opuntia spp. | | | | | | | | | | | | | | | | | |
| Y | 00 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 40 | | 2 |
| M | 00 | 51 | - | - | 1 | - | - | - | - | - | 52 | - | - | - | 1040 | 3 14 | 52 |
| D | 00 | 8 | - | - | - | - | - | - | - | - | 8 | - | - | - | 160 | | 8 |
| % Plants Showing | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | <u>%Change</u> | | | | | | |
| '00 | | 00% | | | 00% | | | 00% | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '00 | 1240 | Dec: | 13% | | |